Section 7.2
Gila Bend Basin

7.2.1 Geography of the Gila Bend Basin

The Gila Bend Basin, located in the east central part of the planning area, is 1,284 square miles in area. Geographic features and principal communities are shown on Figure 7.2-1. The basin is characterized by washes and a series of small mountain ranges. Vegetation types include Lower Colorado River Valley and Arizona Uplands Sonoran desertscrub. (See Figure 7.0-7)

- Principal geographic features shown on Figure 7.2-1 are:
    - Basin communities of Gila Bend and Theba
    - The Gila River running east to west in the northern portion of the basin and Painted Rock Reservoir, which during flood events impounds the river
    - Quilotosa and Sauceda Washes south of Gila Bend
    - Maricopa and Sand Tank Mountains in the eastern portion of the basin, the Sauceda Mountains in the south and the Gila Bend Mountains in the north
    - The lowest point in the basin about 660 feet at Painted Rock Dam where the Gila River exits the basin
    - The highest point in the basin at 3,183 feet in the Maricopa Mountains

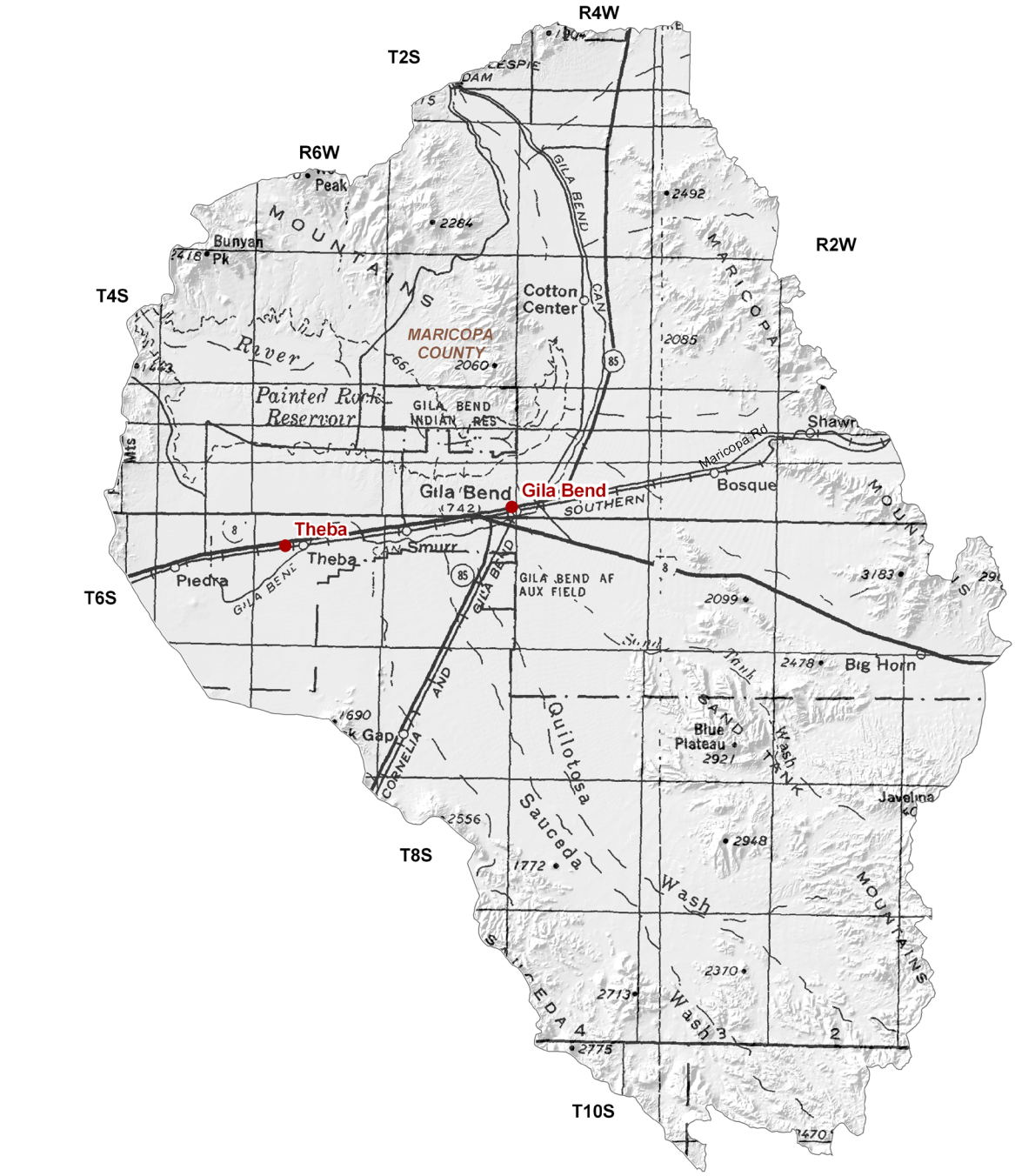


Figure 7.2-1
Gila Bend Basin
Geographic Features

7.2.2 Land Ownership in the Gila Bend Basin

Land ownership, including the percentage of ownership by category, for the Gila Bend Basin is shown in Figure 7.2-2. Principal features of land ownership in this basin are the large areas of military and Bureau of Land Management lands. A description of land ownership data sources and methods is found in Volume 1, Section 1.3.8. Land ownership categories are discussed below in the order of largest to smallest percentage in the basin.

U.S. Bureau of Land Management (BLM)

- 41.7% of the land is federally owned and managed by the Lower Sonoran Office of the Bureau of Land Management.
- BLM Land in this basin includes 238,700 acres of the 487,000 acre Sonoran Desert National Monument and 49,000 acres of the 64,000 acre Woolsey Peak Wilderness. (See Figure 7.0-9)
- Land uses include resource conservation, recreation and grazing.

U.S. Military

- 33.5% of the land is federally owned and managed by the U.S. Military as the Barry Goldwater Air Force Range.
- Primary land use is military activity.

Private

- 15.7% of the land is private.
- The majority of the private land is in the center of the basin in the vicinity of Gila Bend, Highway 89 and Interstate 8.
- Land uses include domestic, commercial and ranching.

State Trust Land

- 6.2% of the land is held in trust for the public schools under the State Trust Land system.
- Primary land use is grazing.

Indian Reservation

- 2.8% of the land is under tribal ownership including all of the Gila Bend Indian Reservation and a small portion of the Tohono O'odham Indian Reservation. Both are part of the Tohono O'odham Nation
- Land uses include agriculture, domestic and grazing.

Other

- 0.1% of the land is owned by Maricopa County.
- County land is located on the northern basin boundary and is managed as the Buckeye Hills County Park.
- Primary land use is recreation.

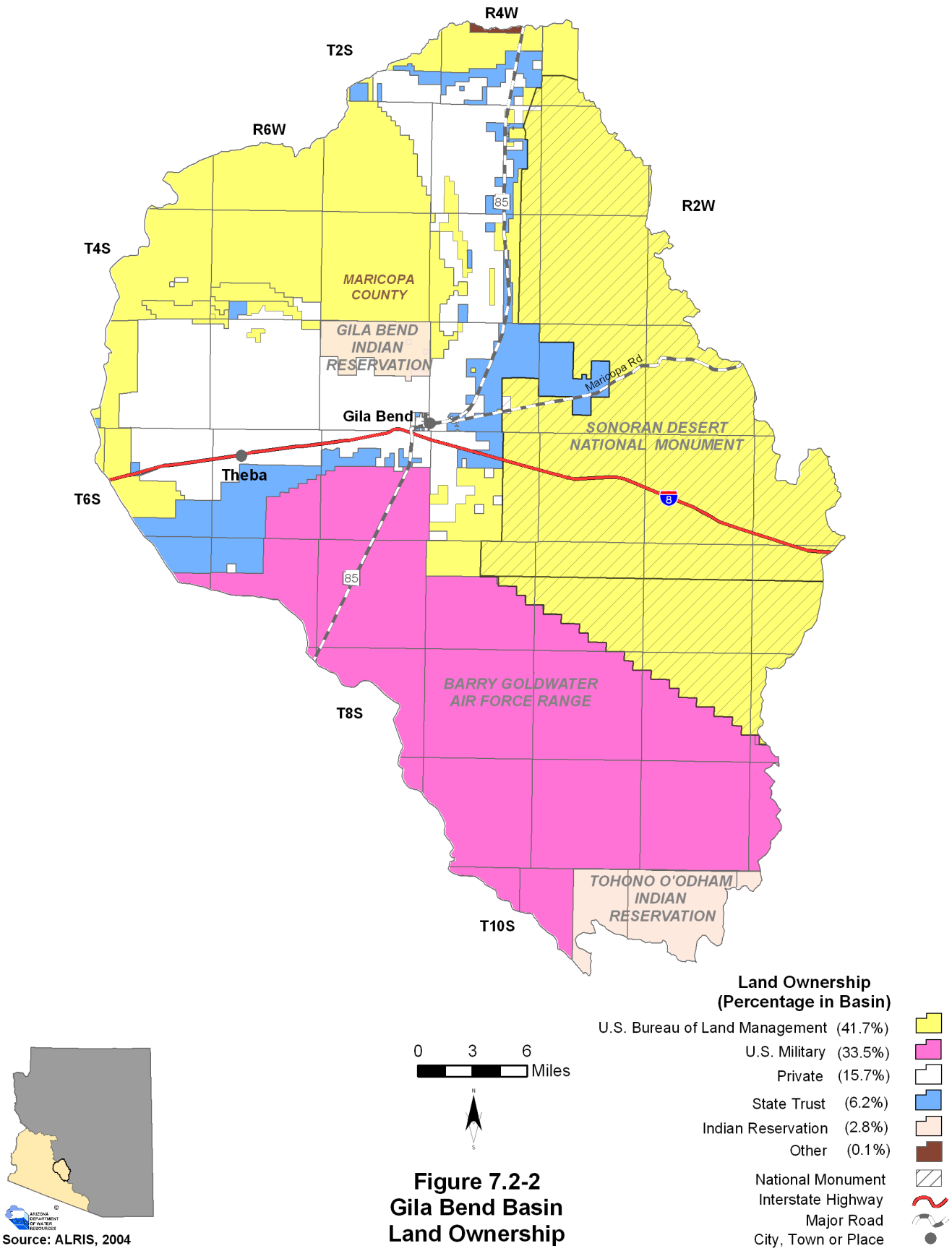


Figure 7.2-2
Gila Bend Basin
Land Ownership

7.2.3 Climate of the Gila Bend Basin

Climate data from NOAA/NWS Co-op Network and AZMET stations are complied in Table 7.2-1 and the locations are shown on Figure 7.2-3. Figure 7.2-3 also shows precipitation contour data from the Spatial Climate Analysis Service (SCAS) at Oregon State University. The Gila Bend Basin does not contain Evaporation Pan or SNOTEL/ Snowcourse stations. A description of the climate data sources and methods is found in Volume 1, Section 1.3.3.

NOAA/NWS Co-op Network

- Refer to Table 7.2-1A
- There is one NOAA/NWS Co-op Network station in the basin, Gila Bend, with an annual high temperature of 94.1°F and an average annual low of 55.0°F.
- Highest average seasonal rainfall, 2.49 inches, occurs in both the summer (July-September) and fall (October-December) seasons when 66% of the annual average precipitation occurs.

AZMET

- Refer to Table 7.2-1C
- There is one evaporation pan station in the basin, Paloma. This pan is at 719 feet and has an annual evaporation rate of 76.53 inches.

SCAS Precipitation Data

- See Figure 7.2-3
- Additional precipitation data shows average annual rainfall as high as 14 inches at the southeastern tip of the basin and as low as four inches along the western basin boundary.

Table 7.2-1 Climate Data for the Gila Bend Basin

A. NOAA/NWS Co-op Network:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Temperature Range (in F)		Average Precipitation (in inches)				
			Max/Month	Min/Month	Winter	Spring	Summer	Fall	Annual
Gila Bend	730	1971 - 2000	94.1/Jul	55.0/Dec, Jan	2.21	0.39	2.49	2.49	7.01

Source: WRCC, 2003

B. Evaporation Pan:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Avg. Annual Evaporation (in inches)
None			

Source: WRCC, 2003

C. AZMET:

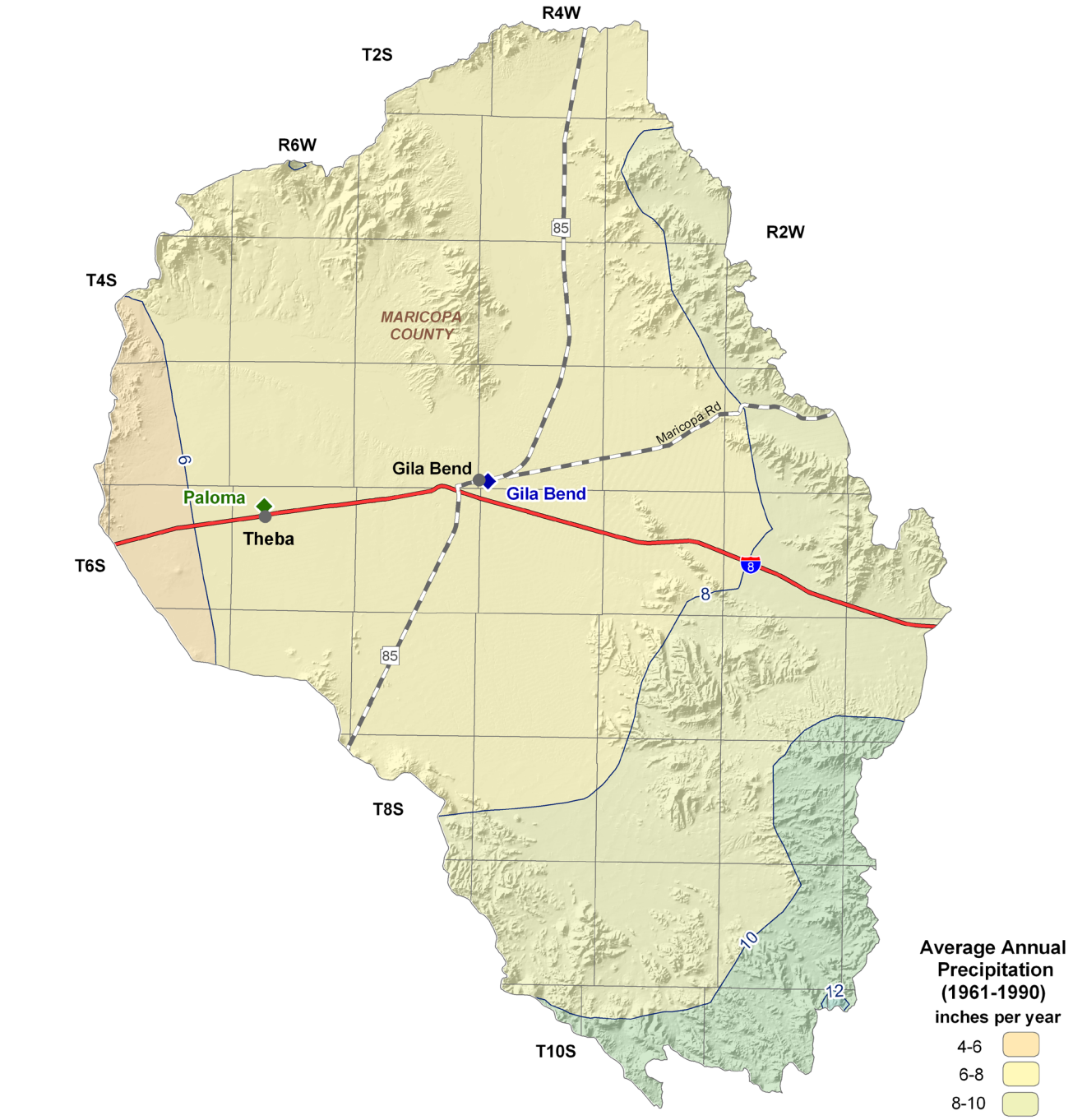
Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Annual Reference Evaportranspiration, in inches (N*umber of years to calculate averages*)
Paloma	719	1992 - current	76.53 *(6)*

Source: Arizona Meteorological Network, 2005

D. SNOTEL/Snowcourse:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Snowpack, at Beginning of the Month, as Inches Snow Water Content *(Number of measurements to calculate average)*					
			Jan.	Feb.	March	April	May	June
None								

Source: NRCS, 2005



Precipitation Data Source: Oregon State University, 1998

Figure 7.2-3
Gila Bend Basin
Meteorological Stations and Annual Precipitation

7.2.4 Surface Water Conditions in the Gila Bend Basin

Streamflow data, including average seasonal flow, average annual flow and other information are shown in Table 7.2-2. Flood ALERT equipment in the basin is shown in Table 7.2-3. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 7.2-4. The location of streamflow gages identified by USGS number, flood ALERT equipment, USGS runoff contours and large reservoirs are shown on Figure 7.2-5. A description of stream data sources and methods is found in Volume 1, Section 1.3.16. A description of reservoir data sources and methods is found in Volume 1, Section 1.3.11. A description of stockpond data sources and methods is found in Volume 1, Section 1.3.15.

Streamflow Data

- Refer to Table 7.2-2.
- Data from three stations located at two watercourses are shown in the table and on Figure 7.2-5.
- Average seasonal flow varies. At the Gila River stations most of the average seasonal flow occurs during winter (January-March) or spring (April-June). At the Sauceda Wash near Gila Bend station, with a small, local drainage area, 86% of the average seasonal flow occurs in the summer season (July-September) and no flow occurs in the spring season (April-June).
- The largest annual flow recorded in the basin is 5.7 million acre-feet in 1993 at the Gila River below Gillespie Dam station with a contributing drainage area of 49,650 square miles. Gillespie Dam was breached during the 1993 flood. See Figure 7.2-4.

Flood ALERT Equipment

- Refer to Table 7.2-3.
- Most of the nine ALERT gages in the Gila Bend Basin are located along the Gila River and its tributaries.

Reservoirs and Stockponds

- Refer to Table 7.2-4.
- The basin contains one large reservoir, Painted Rock, with a maximum storage of 4,831,500 acre-feet. This reservoir is used for flood control and is only filled during flood events.
- Surface water is stored or could be stored in two small reservoirs in the basin.
- There are 24 registered stockponds in this basin.

Runoff Contour

- Refer to Figure 7.2-4.
- Average annual runoff is highest, 0.2 inches per year or 10.66 acre-feet per square mile, in the southernmost portion of the basin and decreases to 0.1 inches, or five acre-feet per square mile, in the remainder of the basin.

Figure 7.2-4 Hydrograph of annual flows for Gila River below Gillespie Dam Station (#9519500), water years 1960-2003

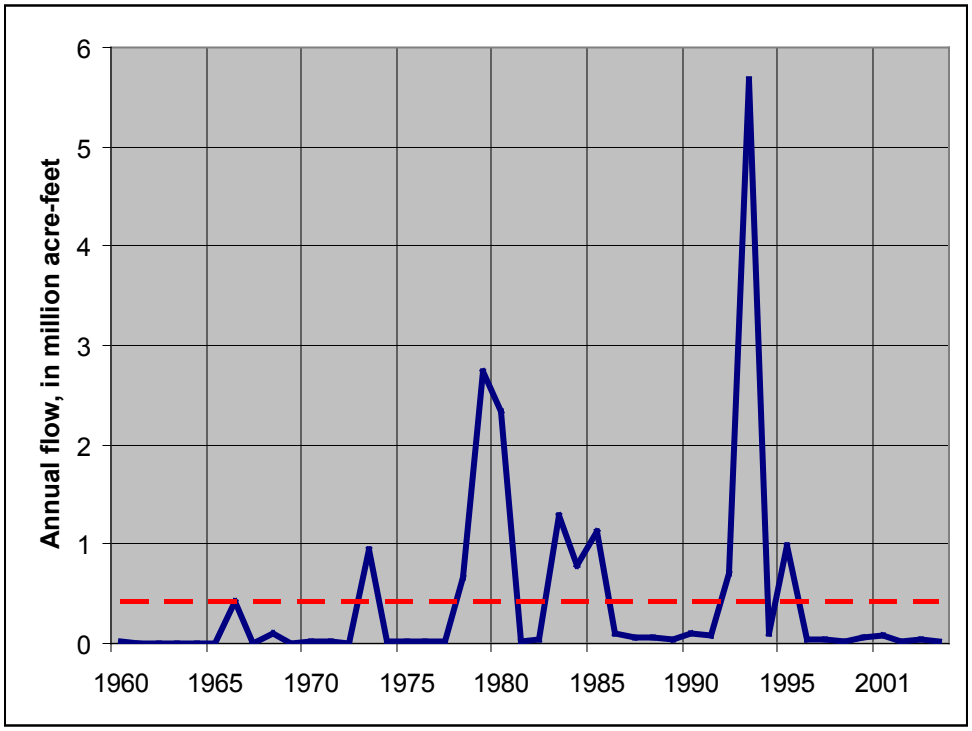


Table 7.2-2 Streamflow Data for the Gila Bend Basin

Station Number	USGS Station Name	Drainage Area (in mi^2)	Mean Basin Elevation (in feet)	Period of Record	Average Seasonal Flow (% of annual flow)				Annual Flow/Year (in acre-feet)				Years of Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9519500	Gila River below Gillespie Dam	49,650	NA	8/1921-9/2004	66	13	7	13	0 (1956)	43,185	327,935	5,675,984 (1993)	80
9519760	Sauceda Wash near Gila Bend	126	1,980	10/1989-9/1994 (discontinued)	6	0	83	10	4 (1992)	195	385	1,144 (1990)	4
9519800	Gila River below Painted Rock Dam	50,910	NA	10/1959-2003	36	36	16	13	0 (1962, 2002)	5,185	330,347	5,088,672 (1993)	43

Sources: USGS NWIS, USGS 1998 and USGS 2003.

Notes:
NA = Not available
Statistics based on Calendar Year
Annual Flow statistics based on monthly values
Annual Flow/Year statistics were only completed for those gages that had at least 3 years of 12 month records.
Summation of Average Annual Flows may not equal 100 due to rounding.
Period of record may not equal Year of Record used for annual Flow/Year statistics due to only using years with a 12 month record

Table 7.2-3 Flood ALERT Equipment in the Gila Bend Basin

Station ID	Station Name	Station Type	Install Date	Responsibility
5060	G&F Woolsey Peak	Weather Station/Stage	6/25/2003	Maricopa County FCD
6905	Gillespie Dam	Precipitation	4/12/1994	Maricopa County FCD
6910	Gila Bend Landfill	Weather Station	4/7/1993	Maricopa County FCD
6920	Sauceda Wash	Precipitation/Stage	2/28/1990	Maricopa County FCD
6930	Sand Tank @ I-8	Precipitation/Stage	6/28/2001	Maricopa County FCD
6940	Sand Tank Wash	Precipitation	7/21/1983	Maricopa County FCD
6950	Rainbow Wash	Precipitation/Stage	11/6/2000	Maricopa County FCD
6955	Maricopa Mountains	Precipitation	4/21/2005	Maricopa County FCD
6960	Bender Wash	Precipitation/Stage	1/12/1982	Maricopa County FCD

Notes:
FCD = Flood Control District

Table 7.2-4 Reservoirs and Stockponds in the Gila Bend Basin

A. Large Reservoirs (500 acre-feet capacity and greater)

MAP KEY	RESERVOIR/LAKE NAME *(Name of dam, if different)*	OWNER/OPERATOR	MAXIMUM STORAGE (AF)	USE[1]	JURISDICTION
1	Painted Rock	Bureau of Reclamation	4,831,500	C	Federal

Source: U.S. Army Corps of Engineers 2005

B. Other Large Reservoirs (50 acre surface area or greater)

MAP KEY	RESERVOIR/LAKE NAME *(Name of dam, if different)*	OWNER/OPERATOR	MAXIMUM SURFACE AREA (acres)	USE	JURISDICTION
None identified by ADWR at this time					

C. Small Reservoirs (greater than 15 acre-feet and less than 500 acre-feet capacity)

Total number: 2
Total maximum storage: 171 acre-feet

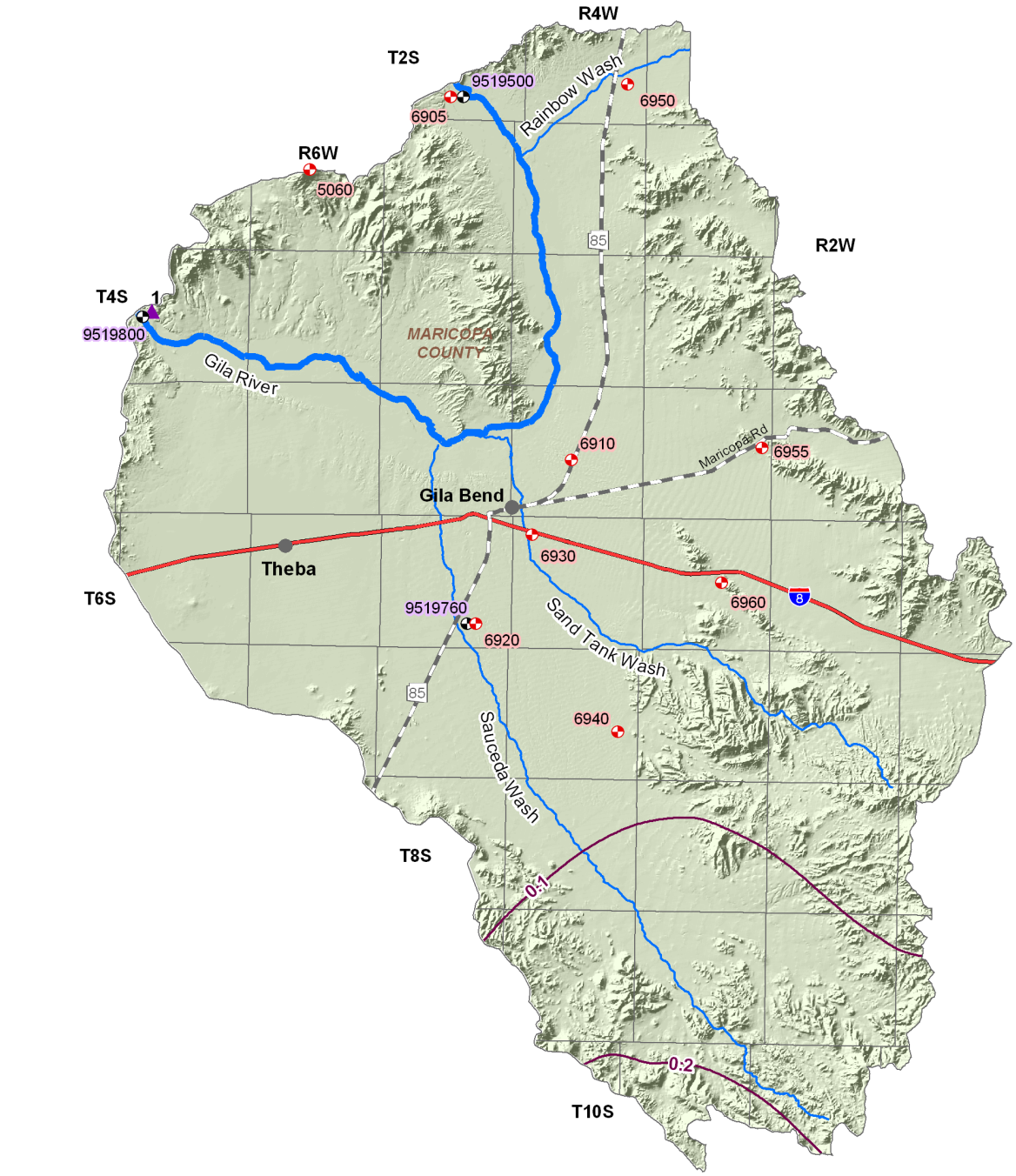
D. Other Small Reservoirs (between 5 and 50 acres surface area)

Total number: 0
Total surface area: 0 acres

E. Stockponds (up to 15 acre-feet capacity)

Total number: 24

Notes:
[1]C = Flood control



Stream Data Source: ALRIS, 2005

0 3 6 Miles

USGS Annual Runoff Contour for 1951-1980 (in inches) 2

Stream Channel (width of line reflects stream order)

Large Reservoir

USGS Gage and Station ID 9999999

Flood ALERT Equip. & Station ID 9999

Interstate Highway

Major Road

City, Town or Place

Figure 7.2-5
Gila Bend Basin
Surface Water Conditions

7.2.5 Perennial/Intermittent Streams and Major Springs in the Gila Bend Basin

The total number of springs in the basin are shown in Table 7.2-5. The locations of perennial streams are shown on Figure 7.2-6. A description of data sources and methods for intermittent and perennial reaches is found in Volume 1, Section 1.3.16. A description of spring data sources and methods is found in Volume 1, Section 1.3.14.

- There are no perennial streams and one intermittent stream, the Gila River.
- There are no major or minor springs in the basin.
- The total number of springs, regardless of discharge, identified by the USGS varies from zero to one, depending on the database reference.

Table 7.2-5 Springs in the Gila Bend Basin

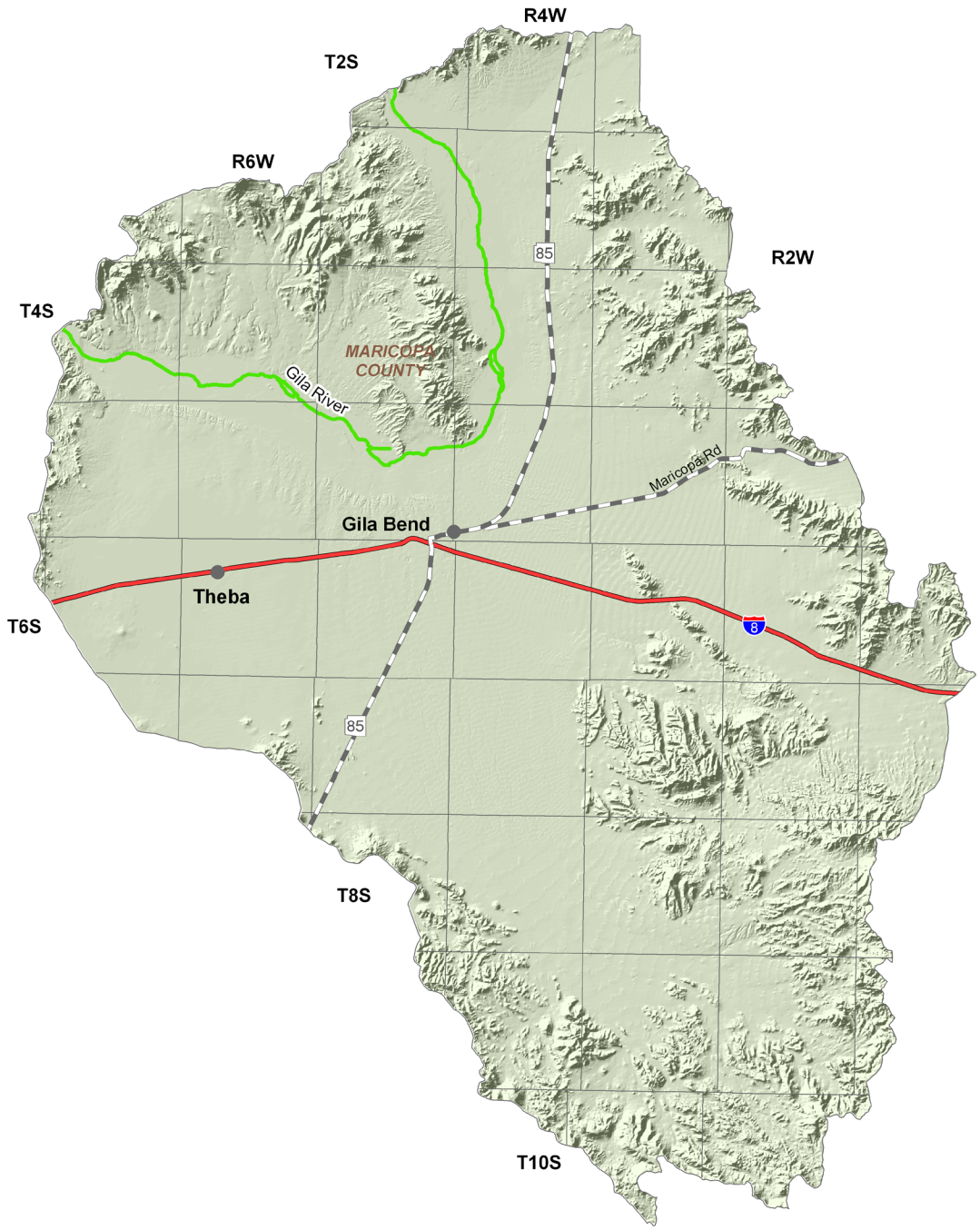
A. Major Springs (10 gpm or greater):

Map Key	Name	Location		Discharge (in gpm)	Date Discharge Measured
		Latitude	Longitude		
None identified by ADWR at this time					

B. Minor Springs (1 to 10 gpm):

Name	Location		Discharge (in gpm)	Date Discharge Measured
	Latitude	Longitude		
None identified by ADWR at this time				

C. Total number of springs, regardless of discharge, identified by USGS (see ALRIS, 2005 and USGS, 2006): 0 - 1



0 3 6 Miles

Figure 7.2-5
Gila Bend Basin
Perennial\Intermittent Streams and Major (>10 gpm) Springs

Intermittent Stream
Interstate Highway
Major Road
City, Town or Place

Stream Data Source: AGFD, 1993 & 1997

7.2.6 Groundwater Conditions of the Gila Bend Basin

Major aquifers, well yields, estimated water in storage, number of index wells and date of last water-level sweep are shown in Table 7.2-6. Figure 7.2-7 shows aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 7.2-8 contains hydrographs for selected wells shown on Figure 7.2-7. Figure 7.2-9 shows well yields in five yield categories. A description of aquifer data sources and methods is found in Volume 1, Section 1.3.2. A description of well data sources and methods, including water-level changes and well yields, is found in Volume 1, Section 1.3.19.

Major Aquifers

- Refer to Table 7.2-6 and Figure 7.2-7
- The major aquifer is basin fill.
- Flow direction is from north to southwest in the center of the basin and from the west to east in the northern portion of the basin.

Well Yields

- Refer to Table 7.2-6 and Figure 7.2-9
- As shown on Figure 7.2-9, well yields are generally greater than 2,000 gallons per minute (gpm).
- One source of well yield information, based on 242 reported wells, indicates that the median well yield is 2,700 gpm.

Natural Recharge

- Refer to Table 7.2-6
- There are three estimates of natural recharge for this basin ranging from 10,000 acre-feet per year to 37,000 acre-feet per year.
- The largest source of natural recharge in the basin occurs from Gila River flood events and infiltration of water impounded behind Painted Rock Dam (ADWR 1994).

Water in Storage

- Refer to Table 7.2-6
- There are three estimates of water in storage ranging from 17 million acre-feet to 61 million acre-feet, both to a depth of 1,200 feet.

Water Level

- Refer to Figure 7.2-7. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 31 index wells in this basin, hydrographs for seven index wells are shown on Figure 7.2-8.
- The deepest water level shown on the map is 639 feet south of Maricopa Road and the shallowest is 34 feet near the western basin boundary.

Table 7.2-6 Groundwater Data for the Gila Bend Basin

Basin Area, in square miles:	1,284	
Major Aquifer(s):	**Name and/or Geologic Units**	
	Basin Fill	
Well Yields, in gal/min:	Range 300-4,266 Median 2,221 (107 wells measured)	Measured by ADWR and/or USGS
	Range 7-5,800 Median 2,700 (242 wells reported)	Reported on registration forms for large (> 10-inch) diameter wells
	Range 300-3,000	ADWR (1990)
	Range 0-2,500	USGS (1994)
	Range 1,000-5,000	ADWR HMS 29 (1996)
Estimated Natural Recharge, in acre-feet/year:	26,000	ADWR (1996)
	37,000	Freethey and Anderson (1986)
	10,000	Arizona Water Commission (1975)
Estimated Water Currently in Storage, in acre-feet:	27,600,000 (to 1,200 ft)	ADWR (1994)
	17,000,000[1] (to 1,200 ft)	Freethey and Anderson (1986)
	61,000,000 (to 1,200 ft)	Arizona Water Commission (1975)
Current Number of Index Wells:	31	
Date of Last Water-level Sweep:	1993 (218 wells measured)	

[1]Predevelopment Estimate

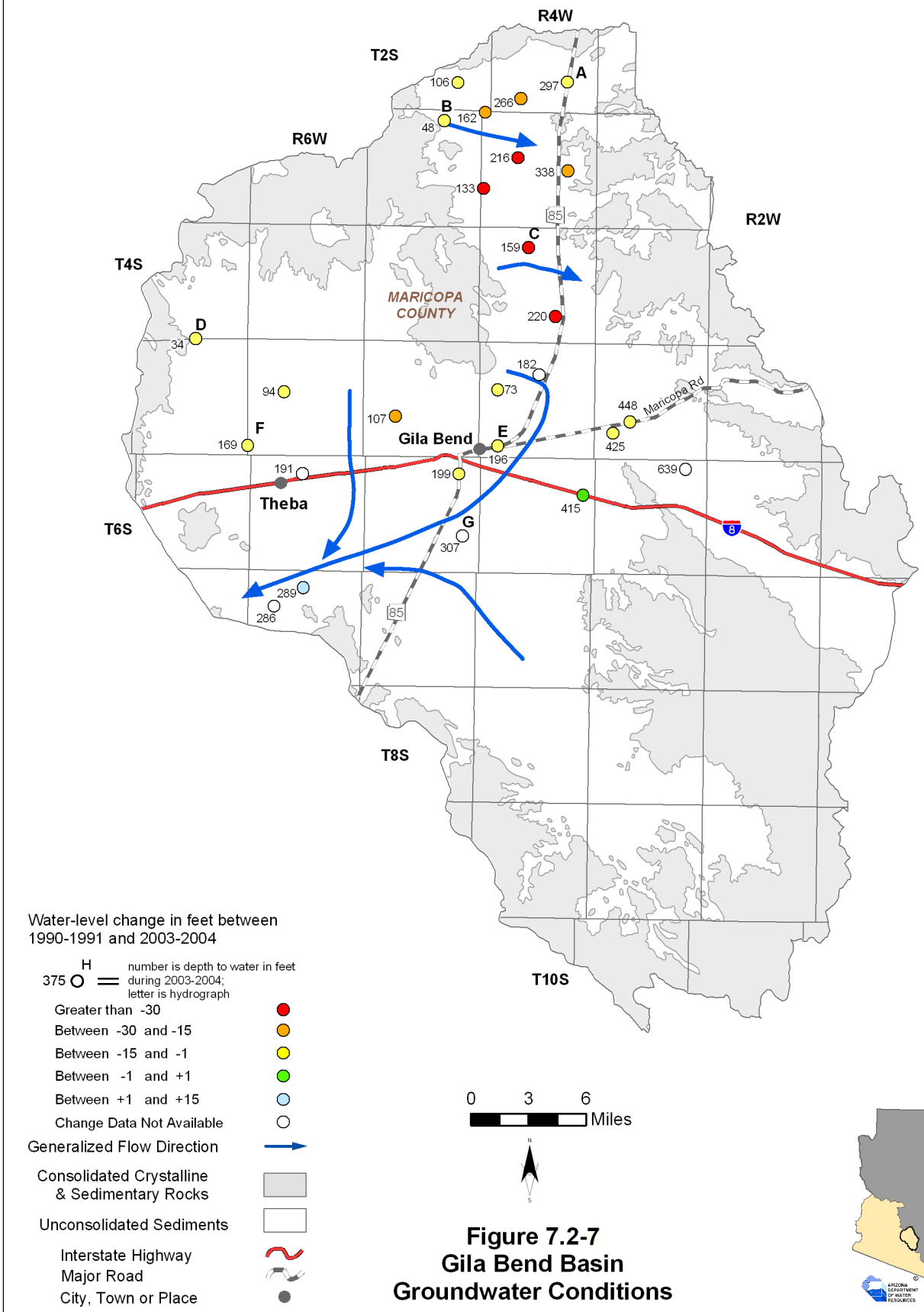


Figure 7.2-7
Gila Bend Basin
Groundwater Conditions

Figure 7.2-8
Gila Bend Basin
Hydrographs Showing Depth to Water in Selected Wells

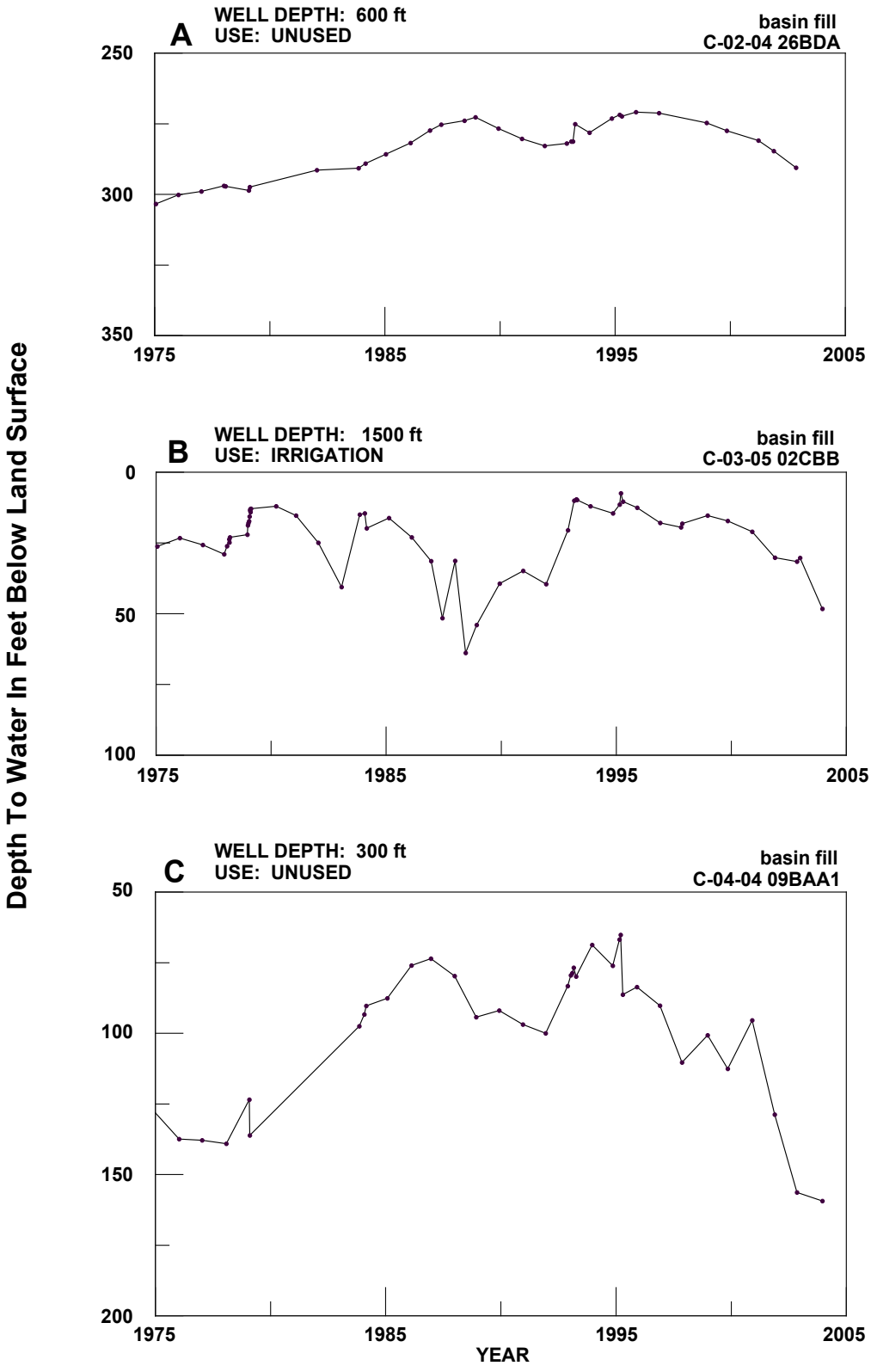
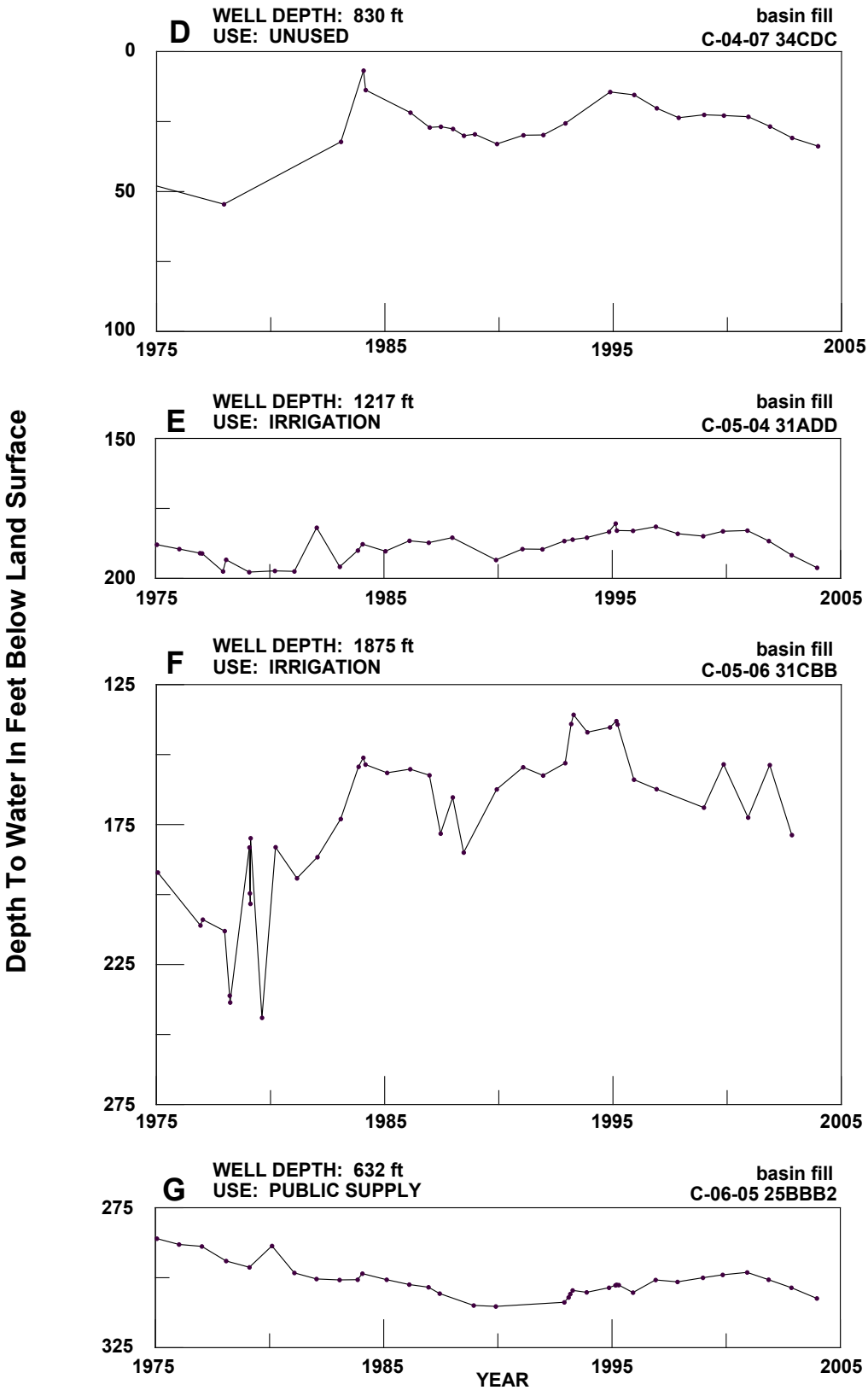
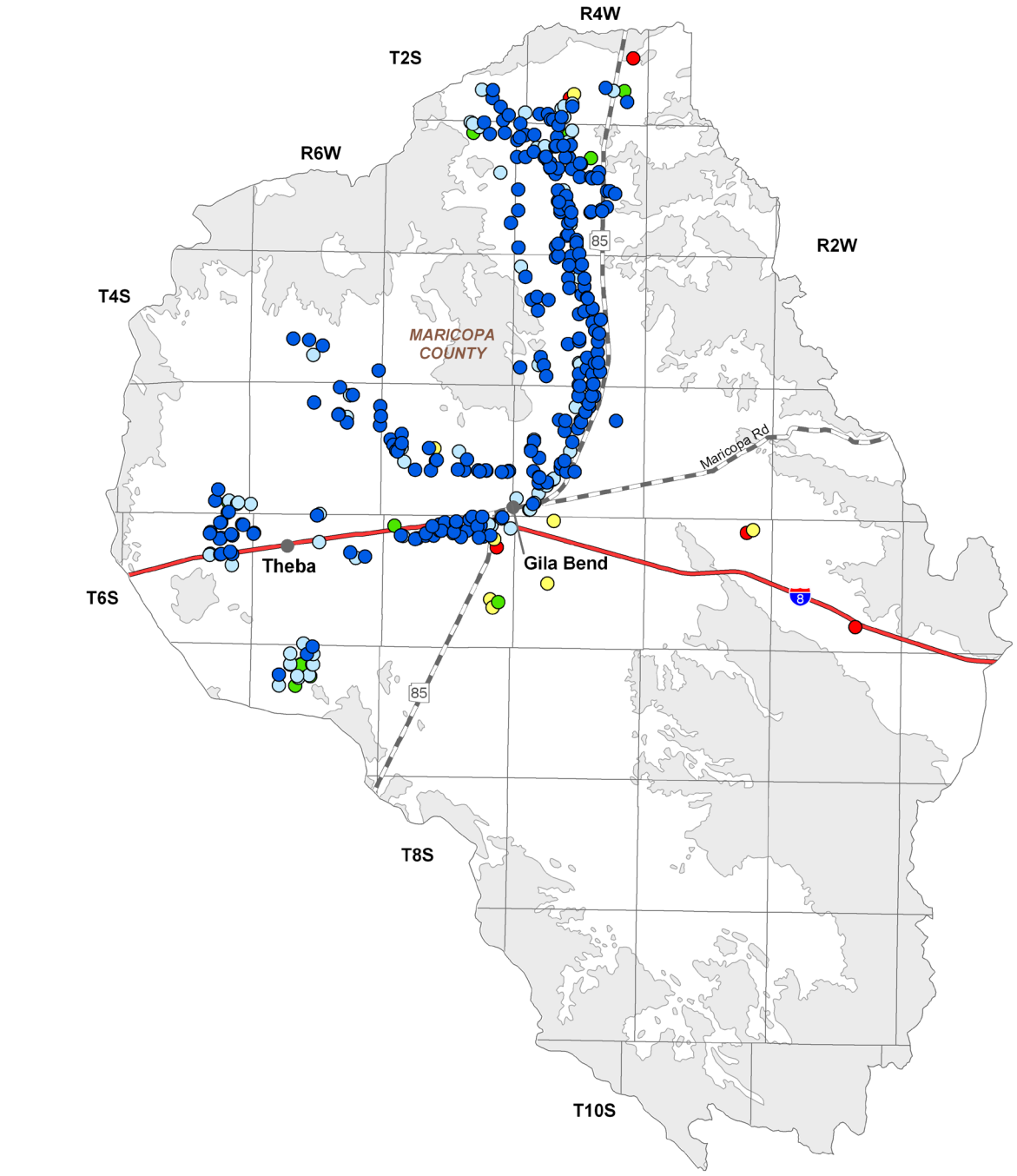


Figure 7.2-8 (cont'd)
Gila Bend Basin
Hydrographs Showing Depth to Water in Selected Wells





0 3 6 Miles

N
S

Figure 7.2-8
Gila Bend Basin
Well Yields

Well Yields
- Greater than 2000 gals/min
- Between 1000 and 2000 gals/min
- Between 500 and 1000 gals/min
- Between 100 and 500 gals/min
- Less than 100 gals/min

Consolidated Crystalline & Sedimentary Rocks
Unconsolidated Sediments

Interstate Highway
Major Road
City, Town or Place

7.2.7 Water Quality of the Gila Bend Basin

Wells, springs and mine sites with parameter concentrations that have equaled or exceeded drinking water standard(s), including location and parameter(s) are shown in Table 7.2-7A. Impaired lakes and streams with site type, name, length of impaired reach, area of impaired lake, designated use standard and parameter(s) exceeded is shown in Table 7.2-7B. Figure 7.2-10 shows the location of water quality occurrences keyed to Table 7.2-7. A description of water quality data sources and methods is found in Volume 1, Section 1.3.18. Not all parameters were measured at all sites; selective sampling for particular constituents is common.

Wells, Springs and Mine Sites

- Refer to Table 7.2-7A.
- One hundred and twenty-two wells have parameter concentrations that have equaled or exceeded drinking water standards.
- Ninety-two percent of the wells measured equaled or exceeded the parameter for fluoride.
- Other parameters equaled or exceeded include arsenic, nitrate, mercury, selenium and total dissolved solids.

Lakes and Streams

- Refer to Table 7.2-7B.
- The water quality standard for organics was equaled or exceeded in three reaches of the Gila River totaling 41 miles. The standard for organics was also equaled or exceeded in 100 acres of the Painted Rock Reservoir.
- None of the reaches or the lake are part of the ADEQ water quality improvement effort, the Total Maximum Daily Load (TMDL) Program, at this time.

Effluent Dependent Reaches

- See Figure 7.2-10
- There is one effluent dependent reach north of Gila Bend. This reach receives effluent from the Gila Bend Wastewater Treatment Plant.

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
1	Well	2 South	4 West	25	F
2	Well	2 South	4 West	25	F
3	Well	2 South	4 West	32	F
4	Well	2 South	4 West	32	F
5	Well	2 South	4 West	33	F
6	Well	2 South	4 West	33	F, NO3, TDS
7	Well	2 South	4 West	33	F
8	Well	2 South	4 West	33	F
9	Well	3 South	4 West	5	F
10	Well	3 South	4 West	9	F, NO3
11	Well	3 South	4 West	9	F
12	Well	3 South	4 West	9	F
13	Well	3 South	4 West	15	F
14	Well	3 South	4 West	15	F
15	Well	3 South	4 West	16	F
16	Well	3 South	4 West	23	F
17	Well	3 South	4 West	27	F
18	Well	3 South	4 West	28	TDS
19	Well	4 South	4 West	3	NO3
20	Well	4 South	4 West	4	NO3, TDS
21	Well	4 South	4 West	10	F
22	Well	4 South	4 West	21	F, TDS
23	Well	4 South	4 West	22	F
24	Well	4 South	4 West	28	F
25	Well	4 South	4 West	32	NO3
26	Well	4 South	6 West	28	F
27	Well	4 South	6 West	36	F
28	Well	5 South	4 West	3	NO3
29	Well	5 South	4 West	3	F
30	Well	5 South	4 West	4	F
31	Well	5 South	4 West	9	F
32	Well	5 South	4 West	10	F
33	Well	5 South	4 West	10	F
34	Well	5 South	4 West	16	F
35	Well	5 South	4 West	16	F
36	Well	5 South	4 West	17	F
37	Well	5 South	4 West	18	F
38	Well	5 South	4 West	21	F
39	Well	5 South	4 West	21	F
40	Well	5 South	4 West	29	F
41	Well	5 South	4 West	29	F
42	Well	5 South	4 West	29	F
43	Well	5 South	4 West	31	F
44	Well	5 South	4 West	31	F
45	Well	5 South	4 West	31	F

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin (cont'd.)[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
46	Well	5 South	4 West	31	As, F, Hg
47	Well	5 South	4 West	31	F
48	Well	5 South	5 West	18	TDS
49	Well	5 South	5 West	18	F
50	Well	5 South	5 West	19	F
51	Well	5 South	5 West	20	F
52	Well	5 South	5 West	21	F
53	Well	5 South	5 West	22	F
54	Well	5 South	5 West	22	F
55	Well	5 South	5 West	23	F
56	Well	5 South	5 West	24	F
57	Well	5 South	5 West	24	F
58	Well	5 South	5 West	36	F
59	Well	5 South	6 West	3	F
60	Well	5 South	6 West	11	F
61	Well	5 South	6 West	11	F
62	Well	5 South	6 West	16	TDS
63	Well	5 South	6 West	31	F, As
64	Well	5 South	6 West	31	F
65	Well	5 South	6 West	34	F, TDS
66	Well	5 South	7 West	26	F
67	Well	5 South	7 West	35	F
68	Well	5 South	7 West	35	F
69	Well	5 South	7 West	36	F
70	Well	5 South	7 West	36	F
71	Well	5 South	7 West	36	F
72	Well	6 South	3 West	18	As, F
73	Well	6 South	3 West	19	F
74	Well	6 South	4 West	20	F
75	Well	6 South	4 West	20	As, F
76	Well	6 South	4 West	20	F
77	Well	6 South	5 West	2	F
78	Well	6 South	5 West	2	F
79	Well	6 South	5 West	2	F
80	Well	6 South	5 West	2	As, F
81	Well	6 South	5 West	2	F
82	Well	6 South	5 West	2	F
83	Well	6 South	5 West	3	F
84	Well	6 South	5 West	3	F
85	Well	6 South	5 West	3	F
86	Well	6 South	5 West	3	F
87	Well	6 South	5 West	4	As, F
88	Well	6 South	5 West	4	As, F
89	Well	6 South	5 West	4	F

Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin (cont'd.)[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
90	Well	6 South	5 West	5	F
91	Well	6 South	5 West	6	F, NO3, TDS
92	Well	6 South	5 West	8	As, F
93	Well	6 South	5 West	25	As, F
94	Well	6 South	6 West	4	F
95	Well	6 South	6 West	4	F
96	Well	6 South	6 West	6	F
97	Well	6 South	6 West	10	F, Se
98	Well	6 South	6 West	11	F
99	Well	6 South	6 West	33	As, F
100	Well	6 South	7 West	2	F
101	Well	6 South	7 West	2	F
102	Well	6 South	7 West	11	F
103	Well	6 South	7 West	11	As, F
104	Well	6 South	7 West	11	F
105	Well	6 South	7 West	11	F
106	Well	6 South	7 West	12	F
107	Well	7 South	6 West	4	As, F
108	Well	7 South	6 West	4	As
109	Well	7 South	6 West	4	As, F
110	Well	7 South	6 West	4	F
111	Well	7 South	6 West	4	F
112	Well	7 South	6 West	5	F
113	Well	7 South	6 West	5	F
114	Well	7 South	6 West	8	As, F
115	Well	7 South	6 West	8	As, F
116	Well	7 South	6 West	9	As, F
117	Well	7 South	6 West	9	As, F
118	Well	7 South	6 West	9	As
119	Well	7 South	6 West	9	F
120	Well	7 South	6 West	9	F
121	Well	7 South	6 West	9	F
122	Well	7 South	6 West	9	As, F

B. Lakes and Streams

Map Key	Site Type	Site Name	Length of Impaired Stream Reach (in miles)	Area of Impaired Lake (in acres)	Designated Use Standard[3]	Parameter(s) Exceeding Use Standard[2]
a	Stream	Gila River (Gillespie Dam to Rainbow Wash)	5	NA	FC	Organics
b	Stream	Gila River (Rainbow Wash to Sand Tank)	17	NA	FC	Organics
c	Stream	Gila River (Sand Tank to Painted Rock Reservoir)	19	NA	FC	Organics

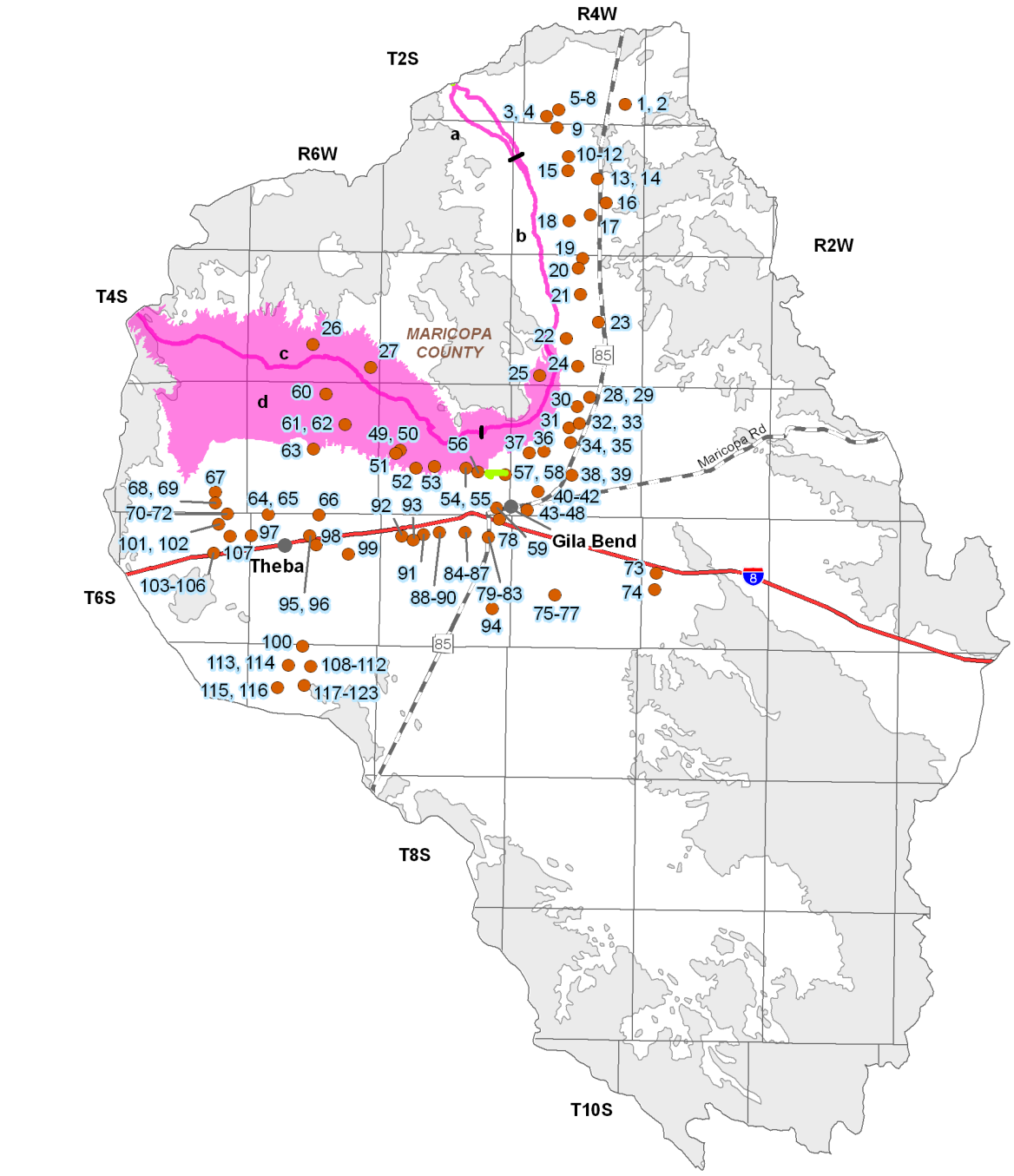
Table 7.2-7 Water Quality Exceedences in the Gila Bend Basin (cont'd.)[1]

B. Lakes and Streams

Map Key	Site Type	Site Name	Length of Impaired Stream Reach (in miles)	Area of Impaired Lake (in acres)	Designated Use Standard[3]	Parameter(s) Exceeding Use Standard[2]
d	Lake	Painted Rock Reservoir	NA	100	FC	Organics

Notes:

[1] Water quality samples collected between 1975 and 2001.
[2] As = Arsenic
NO3 = Nitrate/ Nitrite
F = Fluoride
Hg = Mercury
Organics = One or more of several volatile and semi-volatile organic compounds and pesticides
Se = Selenium
TDS = Total Dissolved Solids
[3] FC = Fish Consumption



0 3 6 Miles

Well, Spring or Mine Site that has Equaled or Exceeded DWS 1
Effluent Dependent Reach
Impaired Stream or Lake a
Consolidated Crystalline & Sedimentary Rocks
Unconsolidated Sediments
Interstate Highway
Major Road
City, Town or Place

Figure 7.2-10
Gila Bend Basin
Water Quality Conditions

7.2.8 Cultural Water Demands in the Gila Bend Basin

Cultural water demand data including population, number of wells and the average well pumpage and surface water diversions by the municipal, industrial and agricultural sectors are shown in Table 7.2-8. Effluent generation including facility ownership, location, population served and not served, volume treated, disposal method and treatment level is shown in Table 7.2-9. Figure 7.2-11 shows the location of demand centers. A description of cultural water demand data sources and methods is found in Volume 1, Section 1.3.5. More detailed information on cultural water demands is found in Section 7.0.7.

Cultural Water Demands

- Refer to Table 7.2-8 and Figure 7.2-11.
- Population in this basin decreased from 3,437 in 1980 to 2,791 in 2000. Projections suggest an increase through 2050.
- Most cultural water use is for irrigation in the northern portion of the basin.
- Agricultural groundwater demand increased 23% and surface water demand decreased 24% from 1991 to 2003.
- There was no reported industrial groundwater demand prior to 2003. In 2003 the Gila River Power Plant and the Citrus Valley Dairy began operation, with a combined demand of 5,000 acre-feet. The Painted Rock Dairy began operation in 2004. Its demand is not shown on Table 7.2-8.
- Municipal groundwater demand is small and increased 18% from 1991 to 2003.
- As of 2003 there were 246 registered wells with a pumping capacity of less than or equal to 35 gallons per minute and 277 wells with a pumping capacity of more than 35 gallons per minute.

Effluent Generation

- Refer to Table 7.2-9.
- There are four wastewater treatment facilities in this basin.
- Information on population served was available for three facilities and information on the volume of effluent generated was available for two facilities. These facilities serve almost 4,900 people, 3,400 of which are at the Lewis Prison, and generate almost 800 acre-feet of effluent per year.
- Effluent is discharged to evaporation ponds and a watercourse and is not reused.

Table 7.2-8. Cultural Water Demands in the Gila Bend Basin[1]

Year	Recent (Census) and Projected (DES) Population	Number of Registered Water Supply Wells Drilled		Average Annual Demand (in acre-feet)						Data Source
				Well Pumpage			Surface-Water Diversions			
		Q ≤ 35 gpm	Q > 35 gpm	Municipal	Industrial	Irrigation	Municipal	Industrial	Irrigation	
1971		169[2]	243[2]	237,000			78,000			ADWR (1994)
1972										
1973										
1974										
1975										
1976				274,000			102,000			
1977										
1978										
1979										
1980	3,437									
1981	3,402	29	28	245,000			117,000			
1982	3,367									
1983	3,332									
1984	3,297									
1985	3,262									
1986	3,227	4	3	179,000			99,000			
1987	3,192									
1988	3,157									
1989	3,122									
1990	3,087									
1991	3,058	7	3	800	NR	237,000	NR	NR	71,500	USGS (2005) ADWR (2005)
1992	3,028									
1993	2,998									
1994	2,969									
1995	2,939									
1996	2,910	10	0	800	NR	244,000	NR	NR	68,500	
1997	2,880									
1998	2,850									
1999	2,821									
2000	2,791									
2001	2,812	14	0	950	5,000[3]	291,000	NR	NR	54,500	
2002	2,833									
2003	2,854									
2010	3,000									
2020	3,387									
2030	4,620									
2040	6,593									
2050	10,885									
ADDITIONAL WELLS:[4]		**13**								
WELL TOTALS:		**246**	**277**							

[1] Does not include evaporation losses from stockponds and reservoirs.

[2] Includes all wells through 1980.

[3] Water use shown is for the Gila River Power Plant (4,900 acre-feet) and the Citrus Valley Dairy (100 acre-feet) that opened in 2003

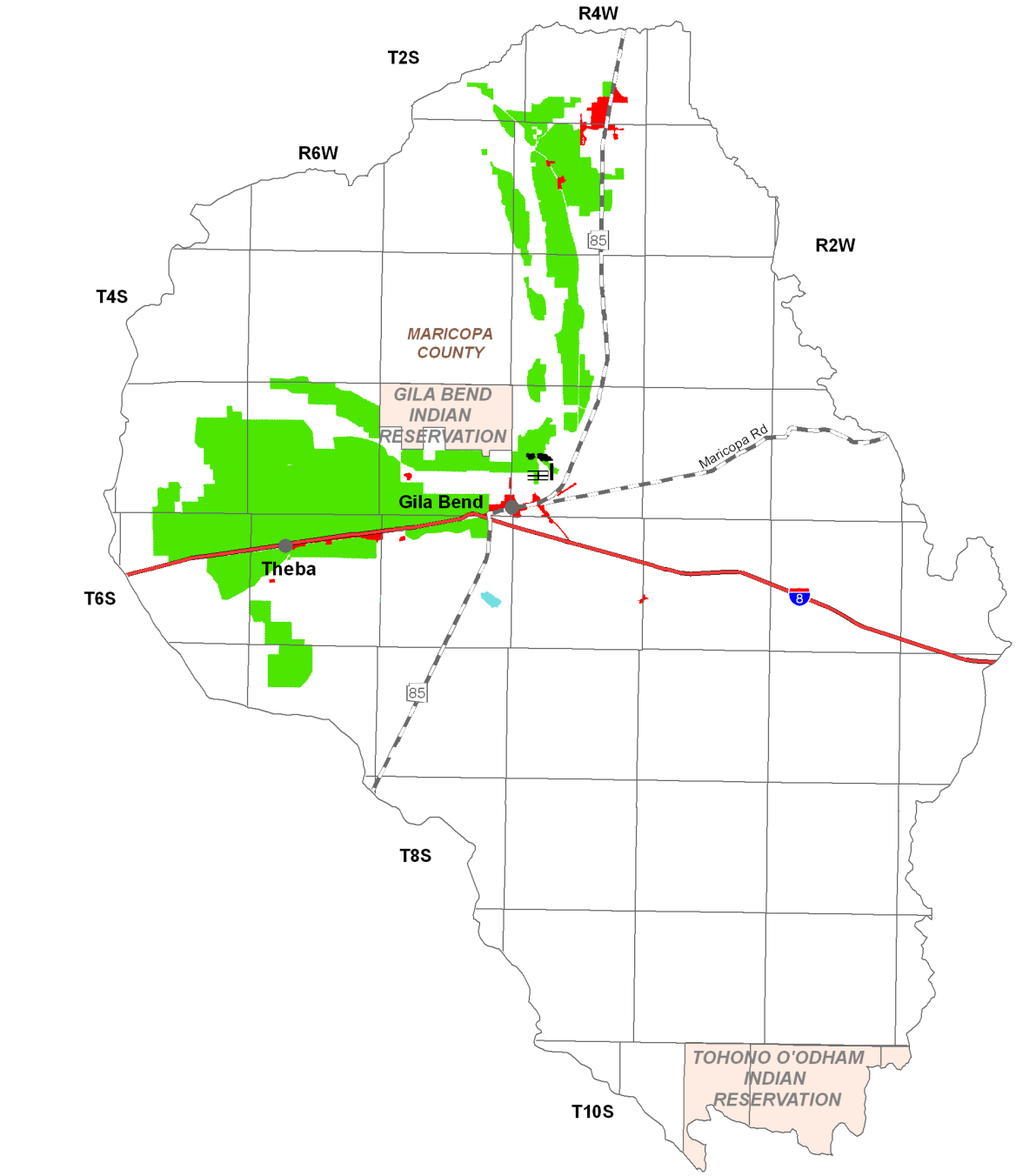
[4] Other water-supply wells are listed in the ADWR Well Registry for this basin, but they do not have completion dates. These wells are summed here.

NR - Not reported

Table 7.2-9 Effluent Generation in the Gila Bend Basin

Facility Name	Ownership	City/Location Served	Population Served	Volume Treated/Generated (acre-feet)	Disposal Method							Current Treatment Level	Population Not Served	Year of Record
					Water-course	Evaporation Pond	Irrigation	Golf Course	Wildlife Area	Discharged to Another Facility	Infiltration Basins			
Auxiliary Field	US Air Force	Airfield	70	NA										
Gila Bend WWTP	Gila Bend	Gila Bend	1,400	392	X							Adv. Trt.I	600	2003
Lewis WWTP	Arizona Department of Corrections	Prison	3,400	403		X						NA	NA	2004
Panda Gila River Project	NA	Power plant	NA			X						NA		

NA: Data not currently available to ADWR
WWTP: Waste Water Treatment Plant
Adv. Trt. I: Advanced Treatment Level I



Primary Data Source: USGS National Gap Analysis Program, 2004

0 3 6 Miles

Figure 7.2-11
Gila Bend Basin
Cultural Water Demand

Demand Centers

- Agriculture
- M&I - High Intensity
- M&I - Low Intensity
- Power Plant
- Indian Reservation
- Interstate Highway
- Major Road
- City, Town or Place

7.2.9 Water Adequacy Determinations in the Gila Bend Basin

Water adequacy determination information including the subdivision name, location, number of lots, adequacy determination, reason for an inadequacy determination, date of determination and subdivision water provider are shown in Table 7.2-10. Figure 7.2-12 shows the general locations of subdivisions (to the section level) keyed to the Table. A description of the Water Adequacy Program is found in Volume 1, Appendix A. Adequacy determination data sources and methods are found in Volume 1, Sections 1.3.1.

Water Adequacy Reports

- See Table 7.2-10
- As of May 2005, four subdivisions have been reviewed for an adequacy determination. All subdivisions are in Maricopa County.
- Of the 89 lots in three subdivisions for which lot information is available, 24 lots or 27% were determined to be adequate.
- Reasons for a determination of inadequacy included water quality and insufficient data.

Table 7.2-10 Adequacy Determinations in the Gila Bend Basin[1]

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No.[2]	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination[3]	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
1	Current Place Unit 1	Maricopa	5 South	4 West	31	30	22-300552	Inadequate	A1	10/23/98	Town of Gila Bend
2	Gila Bend Estates	Maricopa	5 South	5 West	36	35	22-400726	Inadequate	A1, C	07/10/02	Town of Gila Bend
3	Palo Verde Heights Unit I	Maricopa	5 South	4 West	31	24	22-400094	Adequate		06/22/99	Town of Gila Bend
4	Zuni Estates	Maricopa	5 South	5 West	36	NA		Adequate		12/01/75	Town of Gila Bend

Notes:

[1]Each determination of the adequacy of water supplies available to a subdivision is based on the information available to ADWR and the standards of review and policies in effect at the time the determination was made. In some cases, ADWR might make a different determination if a similar application were submitted today, based on the hydrologic data and other information currently available, as well as current rules and policies.

[2] Prior to February 1995, ADWR did not assign file numbers to applications for adequacy determination.

[3] A. Physical/Continuous

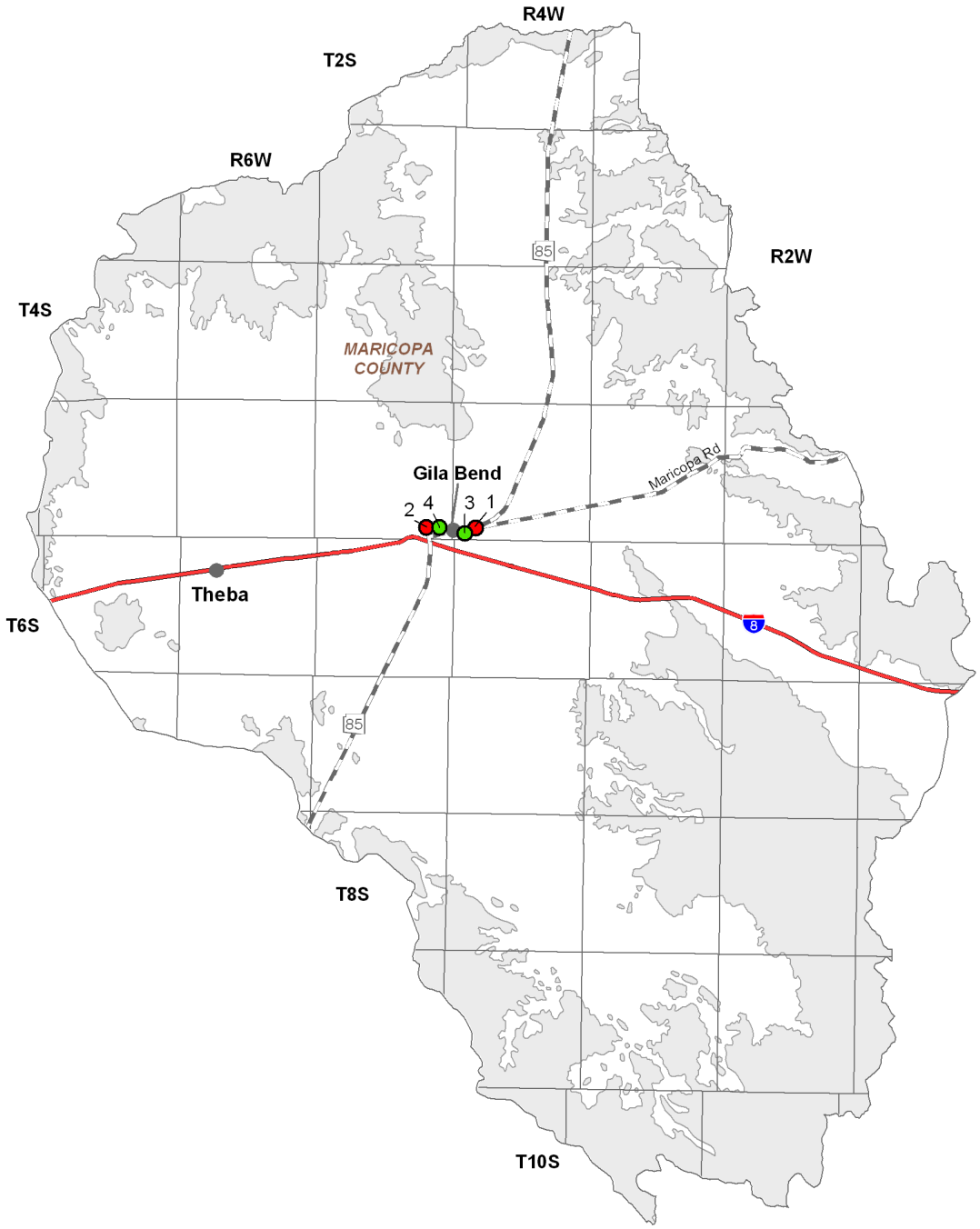
1) Insufficient Data (applicant chose not to submit necessary information, and/or available hydrologic data insufficient to make determination)
2) Insufficient Supply (existing water supply unreliable or physically unavaible; for groundwater, depth-to-water exceeds criteria)
3) Insufficient Infrastructure (distribution system is insufficient to meet demands or applicant proposed water hauling)

B. Legal (applicant failed to demonstrate a legal right to use the water or failed to demonstrate the provider's legal authority to serve the subdivision)

C. Water Quality

D. Unable to locate records

NA = Data not currently available to ADWR



0 3 6 Miles

Adequacy Determinations

- Adequate
- Inadequate
- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments
- Interstate Highway
- Major Road
- City, Town or Place

Figure 7.2-12
Gila Bend Basin
Adequacy Determinations

Gila Bend Basin
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